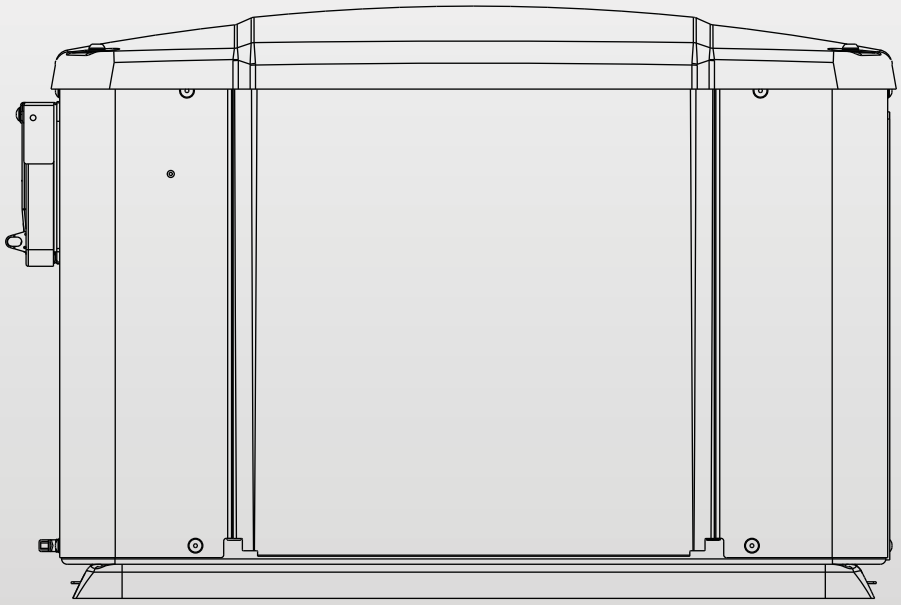
Owner's Manual

Automatic Standby Generator



7 kW PowerPact™

⚠ DANGER!

- **⚠ NOT INTENDED FOR USE IN CRITICAL LIFE SUPPORT APPLICATIONS.**
- **⚠ ONLY QUALIFIED ELECTRICIANS OR CONTRACTORS SHOULD ATTEMPT INSTALLATION.**
- **⚠ DEADLY EXHAUST FUMES! OUTDOOR INSTALLATION ONLY!**

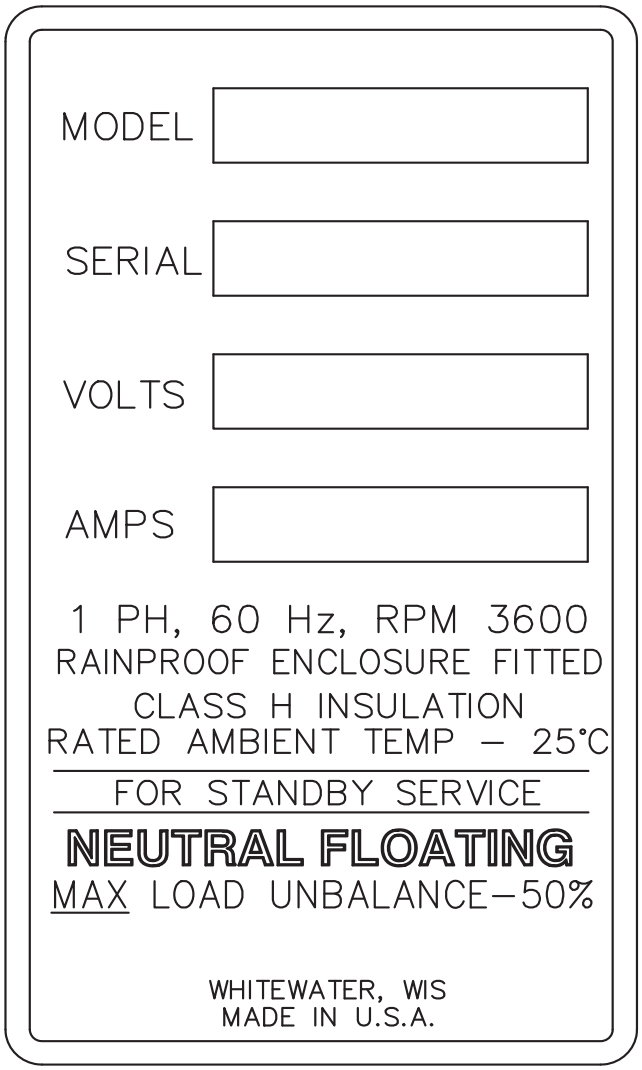
To locate in Spanish, go to http://www.generac.com/service-support/product-support-lookup

To locate in French, go to http://www.generac.com/service-support/product-support-lookup

Reference all appropriate documentation.
This manual should remain with the unit.

C UL US LISTED

Use this page to record important information about your generator set.



Record the information found on your unit data label on this page. The generator unit data label plate is affixed to the engine divider panel inside the enclosure. The unit data label provides the following information:

- Model Number
- Serial Number
- Control Panel Part Number
- Voltage Rating of the unit
- Maximum Current Rating of the unit (AMPS)

When contacting an Independent Authorized Service Dealer about parts and service, always supply the complete model number and serial number of the unit.

Operation and Maintenance: Proper maintenance and care of the generator ensures a minimum number of problems and keeps operating expenses at a minimum. It is the operator's responsibility to perform all safety checks, to make sure that all maintenance for safe operation is performed promptly, and to have the equipment checked periodically by an Independent Authorized Service Dealer. Normal maintenance, service and replacement of parts are the responsibility of the owner/operator and, as such, are not considered defects in materials or workmanship within the terms of the warranty. Individual operating habits and usage may contribute to the need for additional maintenance or service.

When the generator requires servicing or repairs, contact an Independent Authorized Service Dealer for assistance. Authorized service technicians are factory-trained and are capable of handling all service needs.

For any Frequently Asked Questions (FAQs) for your product, please go to: http://www.generac.com/service-support/faqs..

To find your Local Independent AUTHORIZED SERVICE DEALER

INDEPENDENT AUTHORIZED SERVICE DEALER LOCATION

To locate the nearest INDEPENDENT AUTHORIZED SERVICE DEALER, please call this number:
1-800-333-1322

or, visit the dealer locator at:

www.generac.com/Service/Dealer Locator/

WARNING!

California Proposition 65

Engine exhaust and some of its constituents are known to the state of California to cause cancer, birth defects, and other reproductive harm.

WARNING!

California Proposition 65

This product contains or emits chemicals known to the state of California to cause cancer, birth defects, and other reproductive harm.

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Section 1 Safety

INTRODUCTION: Thank you for purchasing this compact, high performance, air-cooled, engine-driven stationary automatic standby generator set. Every effort was made to make sure that the information and instructions in this manual were both accurate and current at the time the manual was written. However, the manufacturer reserves the right to change, alter or otherwise improve this product or manual at any time without prior notice.

This generator is designed to automatically supply electrical power to operate critical loads during a utility power failure. This unit is factory installed in an all-weather metal enclosure and is intended exclusively for outdoor installation. This generator will operate using either vapor withdrawn liquid propane (LP) or natural gas (NG).

NOTE: When properly sized, this generator is suitable for supplying typical residential loads such as Induction Motors (sump pumps, refrigerators, air conditioners, furnaces, etc.), Electronic Components (computer, monitor, TV, etc.), Lighting Loads and Microwaves.

READ THIS MANUAL THOROUGHLY: The operator is responsible for proper and safe use of this equipment. The manufacturer strongly recommends that the operator read and thoroughly understand the instructions and contents of this owner's manual before attempting to use the equipment. If any portion of this publication is not understood, contact the nearest Authorized Service Dealer for starting, operating and servicing procedures.

SAVE THESE INSTRUCTIONS: The manufacturer suggests that this manual and the rules for safe operation be copied and posted near the unit's installation site. Safety should be stressed to all operators and potential operators of this equipment.

SAFETY: Throughout this manual, and on tags and decals affixed to the unit, DANGER, WARNING, CAUTION and NOTE blocks are used to alert personnel to special instructions about a particular operation, function or service that may be hazardous if performed incorrectly or carelessly. Observe them carefully. Their definitions are as follows:

⚠ DANGER!

INDICATES A HAZARDOUS SITUATION OR ACTION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.

⚠ WARNING!

Indicates a hazardous situation or action which, if not avoided, could result in death or serious injury.

⚠ CAUTION!

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTE: Notes contain additional information important to an operation or procedure.

Four commonly used safety symbols accompany the DANGER, WARNING and CAUTION blocks. The type of information each indicates is as follows:

This symbol points out important Safety Information that, if not followed, could endanger personal safety and/or property of others.

This symbol points out a potential Explosion Hazard.

This symbol points out a potential Fire Hazard.

This symbol points out a potential Electrical Shock Hazard.

These "Safety Alerts" cannot eliminate the hazards that they signal. Strict compliance with these special instructions, plus common sense are major accident prevention measures.

1.1 — General Safety

Study these safety rules carefully before operating or servicing this equipment. Become familiar with this Owner's Manual and with the unit. The generator can operate safely, efficiently and reliably only if it is properly installed, operated and maintained. Many accidents are caused by failing to follow simple and fundamental rules or precautions.

The manufacturer cannot anticipate every possible circumstance that might involve a hazard. The warnings in this manual, and on tags and decals affixed to the unit are, therefore, not all-inclusive. If using a procedure, work method or operating technique the manufacturer does not specifically recommend, ensure that it is safe for personnel. Also make sure the procedure, work method or operating technique utilized does not render the generator unsafe.

⚠ DANGER!

⚠ Despite the safe design of this generator, operating this equipment imprudently, neglecting its maintenance or being careless can cause possible injury or death. Permit only responsible and capable persons to install, operate and maintain this equipment.

⚠ Potentially lethal voltages are generated by these machines. Ensure steps are taken to make the machine safe before attempting to work on the generator.

⚠ Parts of the generator are rotating and/or hot during operation. Exercise care near a running generator.

⚠ The installation of this generator must always comply with applicable codes, standards, laws and regulations.

⚠ A running generator gives off DEADLY carbon monoxide, an odorless, colorless, poisonous gas. Breathing carbon monoxide can cause dizziness, throbbing temples, nausea, muscular twitching, headache, vomiting, weakness, sleepiness, inability to think clearly, fainting, unconsciousness or even death.

⚠ CAUTION!

⚠ The control panel for this unit is intended to be operated by qualified service personnel only.

1.2 — General Safety Hazards

- For safety reasons, this equipment should only be installed, serviced and repaired by a Service Dealer or other competent, qualified electrician or installation technician who is familiar with applicable codes, standards, regulations and product Installation Manual guidelines. The operator also must comply with all such codes, standards, regulations and product Installation Manual guidelines.
- The engine exhaust fumes contain carbon monoxide, which can be DEADLY. This dangerous gas, if breathed in sufficient concentrations, can cause unconsciousness or even death. DO NOT alter or add to the exhaust system or do anything that might render the system unsafe or in noncompliance with applicable codes and standards.
- Install a carbon monoxide alarm indoors, according to manufacturer's instructions/recommendations.
- Adequate, unobstructed flow of cooling and ventilating air is critical for correct generator operation. Do not alter the installation or permit even partial blockage of ventilation provisions, as this can seriously affect safe operation of the generator. The generator MUST be installed and operated outdoors only.
- Keep hands, feet, clothing, etc. away from drive belts, fans, and other moving or hot parts. Never remove any drive belt or fan guard while the unit is operating.
- When working on this equipment, remain alert at all times. Never work on the equipment when physically or mentally fatigued.
- Inspect the generator regularly, and contact the nearest Dealer for parts needing repair or replacement.
- Before performing any maintenance on the generator, remove the control panel fuse and disconnect the Negative (—) battery cable to prevent accidental startup. When disconnecting battery cables always remove the NEGATIVE (NEG or "—") cable first, then remove the POSITVE (POS, or "+") cable. When reconnecting the cables, connect the POSITIVE cable first, and the NEGATIVE cable last.
- Never use the generator or any of its parts as a step. Stepping on the unit can stress and break parts, and may result in dangerous operating conditions from leaking exhaust gases, fuel leakage, oil leakage, etc.

1.3 — Exhaust Hazards

- Generator engine exhaust contains DEADLY carbon monoxide, an odorless, colorless, poisonous gas. Breathing carbon monoxide can cause dizziness, throbbing temples, nausea, muscular twitching, headache, vomiting, weakness, sleepiness, inability to think clearly, fainting, unconsciousness or even death. If any carbon monoxide poisoning symptom is experienced, move into fresh air and immediately seek medical attention.
- This generator is designed for OUTDOOR installation ONLY. Never operate the generator inside any garage or other enclosed space.

1.4 — Electrical Hazards

- All generators covered by this manual produce dangerous electrical voltages that can cause fatal electrical shock. Utility power delivers extremely high and dangerous voltages to the transfer switch, as does the standby generator when it is in operation. Avoid contact with bare wires, terminals, connections, etc. while the unit is running. Ensure all appropriate covers, guards and barriers are in place, secured and/or locked before operating the generator. If work must be done around an operating unit, stand on an insulated, dry surface to reduce potential shock hazard.
- Do not handle any kind of electrical device while standing in water, while barefoot, or while hands or feet are wet. DANGEROUS ELECTRICAL SHOCK MAY RESULT.
- This is an Automatic Standby Generator, the generator may crank and start at any time when utility is lost. When this occurs, load circuits are transferred to the STANDBY (generator) power source. To prevent injury, before working on this generator (for inspection, service or maintenance), always put the generator into the OFF mode and remove the 7.5 Amp ATO® fuse from the generator control panel.
- In case of accident caused by electric shock, immediately shut down the source of electrical power. If this is not possible, attempt to free the victim from the live conductor. AVOID DIRECT CONTACT WITH THE VICTIM. Use a nonconducting implement, such as a dry rope or board, to free the victim from the live conductor. If the victim is unconscious, apply first aid and get immediate medical help.
- Never wear jewelry when working on this equipment. Jewelry can conduct electricity resulting in electric shock, or may get caught in moving components resulting in injury.

1.5 — Fire Hazards

- For fire safety, the generator must be installed and maintained properly. Installation MUST always comply with applicable codes, standards, laws, regulations and product Installation Manual guidelines. Adhere strictly to local, state, and national electrical and building codes. Comply with regulations the Occupational Safety and Health Administration (OSHA) has established. Also, ensure that the generator is installed in accordance with the manufacturer's instructions and recommendations. Following proper installation, do nothing that might alter a safe installation and render the unit in noncompliance with the aforementioned codes, standards, laws and regulations.
- Keep a fire extinguisher near the generator at all times. Extinguishers rated "ABC" by the National Fire Protection Association are appropriate for use on the standby generator. Keep the extinguisher properly charged and be familiar with its use. Consult the local fire department with any questions pertaining to fire extinguishers.

1.6 — Explosion Hazards

- Do not smoke around the generator. Wipe up any fuel or oil spills immediately. Ensure that no combustible materials are left in the generator compartment, or on or near the generator as FIRE or EXPLOSION may result. Keep the area surrounding the generator clean and free from debris.
- Gaseous fluids such as natural gas and liquid propane (LP) gas are extremely EXPLOSIVE. Install the fuel supply system according to applicable fuel-gas codes. Before placing the home standby electric system into service, fuel system lines must be properly purged and leak tested according to applicable code. After installation, inspect the fuel system periodically for leaks. No leakage can be permitted.

⚠ WARNING!

If this generator is used to power electrical load circuits normally powered by a utility power source, it is required by code to install a transfer switch. The transfer switch must effectively isolate the electrical system from the utility distribution system when the generator is operating (NEC 702). Failure to isolate an electrical system by such means will result in damage to the generator and also may result in injury or death to utility power workers due to backfeed of electrical energy.

Section 2

General Information

2.1 — The Generator

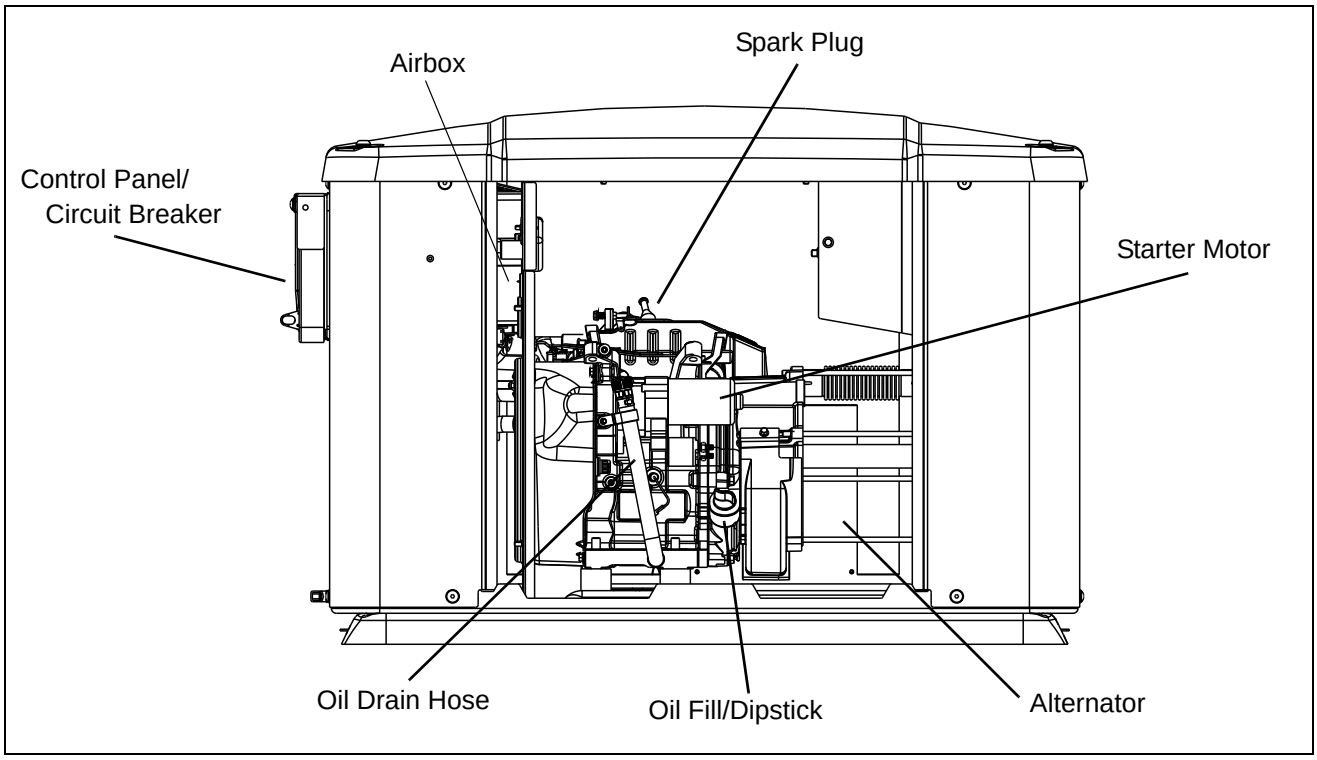


Figure 2-1: GA-420 Engine 7 kW Unit

2.2 — Protection Systems

The generator may have to run for long periods of time with no operator present to monitor the engine/generator conditions. Therefore, the generator is equipped with a number of systems to automatically shut down the unit to protect it against potentially damaging conditions. Some of these systems are as follows:

- Low Oil Level Sensor
- High Temperature Sensor
- Overcrank Detection
- Overspeed Detection
- RPM Sensor
- Underspeed Detection
- Charger Problem Detection
- Battery Problem Detection
- Fuse Problem Detection (missing or failed)
- Wiring Error Detection

The control panel contains LEDs which alert the operator when a fault condition occurs. For more information about alarms and control panel operation, see Section 3 Operation.

2.3 — Emission Information

The U.S. Environmental Protection Agency (EPA) requires that this generator comply with exhaust emission standards. This generator is certified to meet the applicable EPA emission levels, and is certified for use as a stationary engine for standby power generation. Any other use may be a violation of federal and/or local laws. To ensure that the engine complies with the applicable emission standards for the duration of the engine's life, it is important to follow the maintenance specifications in the Section 4 Maintenance. This generator is certified to operate on Liquid Propane Vapor fuel or pipeline Natural Gas.

The Emission Control System on this generator consists of the following components:

- Air Induction System
  - Airbox Assembly
  - Air Cleaner
- Fuel Metering System
  - Carburetor / Mixer Assembly
  - Fuel Regulator
- Ignition System
  - Spark Plug
  - Ignition Module
- Exhaust System
  - Exhaust Manifold
  - Muffler

2.4 — Specifications

2.4.1 — Generator

Output	7 kW
Rated Voltage	240
Rated Maximum Load Current (Amps) at 240 Volts (LP)*	29.2
Main Circuit Breaker	30 Amp
Phase	1
Rated AC Frequency	60 Hz
Battery Requirement	Group U1, 12 Volts and 300 CCA Minimum (Generac Part No. OD4575)
Weight (unit only in lbs./ kg)	280/127.3
Enclosure	Galvanneal Steel
Normal Operating Range	This unit is tested in accordance to UL 2200 standards with an operating temperature of -20 ºF (-29 ºC) to 122 ºF (50 ºC). For areas where temperatures fall below 32 ºF (0 ºC) a cold weather kit is required. When operated above 77 ºF (25 ºC) there may be a decrease in engine power. Please reference the engine specifications section.
These generators are rated in accordance with UL 2200, Safety Standard for Stationary Engine Generator Assemblies, and CSA-C22.2 No. 100-04 Standard for Motors and Generators. * Natural Gas ratings will depend on specific fuel Btu/joules content. Typical derates are between 10-20% off the LP gas rating. ** Circuits to be moved must be protected by same size breaker. For example, a 15 Amp circuit in the main panel must be a 15 Amp circuit in the transfer switch.	

2.4.2 — Engine

Type of Engine	GA-420
Number of Cylinders	1
Displacement	420 cc
Cylinder Block	Aluminum w/Cast Iron Sleeve
Recommended Spark Plug	F7TC/ Champion N9YC
Spark Plug Gap	0.76 mm (0.030 in)
Starter	12 VDC
Oil Capacity Including Filter	Approx. 1.2 Qt/1.1 L
Recommended Air Filter	Generac Part No. 0E9371A
Engine power is subject to and limited by such factors as fuel Btu/joules content, ambient temperature and altitude. Engine power decreases about 3.5 percent for each 1,000 feet (304.8 meters) above sea level, and also will decrease about 1 percent for each 10 ºF (6 ºC) above 60 ºF (15 ºC) ambient temperature.	

The specification sheet for your generator was included in the documentation provided with the unit at the time of purchase. For additional copies, consult your local Authorized Service Dealer for your specific generator model.

2.4.3 — Fuel Requirements

The engine has been fitted with a dual fuel carburetion system. The unit will run on natural gas or LP gas (vapor), but it has been factory set to run on natural gas. The fuel system will be configured for the available fuel source during installation.

Recommended fuels should have a btu content of at least 1,000 Btus per cubic foot (37.26 megajoules per cubic meter) for natural gas, or at least 2,500 Btus per cubic foot (93.15 megajoules per cubic meter) for LP gas (vapor).

NOTE: If converting to LP gas from natural gas, a minimum LP tank size of 250 gallons (946 liters) is recommended. See the Installation Manual for complete procedures and details.

⚠ DANGER!

Gaseous fuels such as natural gas and liquid propane gas are highly explosive. Even the slightest spark can ignite such fuels and cause an explosion. No leakage of fuel is permitted. Natural gas, which is lighter than air, tends to collect in high areas. LP gas is heavier than air and tends to settle in low areas.

2.4.4 — Battery Requirements

Group U1, 12V, minimum 300 CCA (Generac Part No. OD4575).

For proper battery maintenance procedures, see Section 4 Maintenance.

2.4.5 — Battery Charger

The battery charger is integrated into the control panel module in all models. It operates as a “Smart Charger” which ensures output charging levels are safe and continuously optimized to promote maximum battery life.

2.5 — Accessories

There are performance enhancing accessories available for air-cooled generators.

Accessory	Description
Cold Weather Kit	Required in areas where temperatures regularly fall below 32 ºF (0 ºC).
Scheduled Maintenance Kit	Includes all pieces necessary to perform maintenance on the generator along with oil recommendations.
Mobile Link™	Provides a personalized web portal that displays the generator’s status, maintenance schedule, event history and much more. This portal is accessible via computer, tablet or smart phone. Sends emails and/or text notifications when there is any change in the generator’s status. Notification settings can be customized to what type of alert is sent and how often. For more information, visit www.standbystatus.com.
Wireless Local Monitor	Completely wireless and battery powered, the Wireless Monitor provides you with instant status without ever leaving the house. Status lights (red, yellow and green) alert owners when the generator needs attention. Magnetic backing permits refrigerator mounting and gives a 600 foot line of sight communication.
Touch-Up Paint Kit	Very important to maintain the look and integrity of the generator enclosure. This kit includes touch-up paint and instructions.
Extended Warranty Coverage	Extend your generator’s warranty coverage by purchasing the 5 year extended warranty coverage. Covers 5 years of both parts and labor. Extended coverage can be purchased within 12 months of the end-users purchase date. This extended coverage is applicable to registered units and end-user proof of purchase must be available upon request.

Contact a Dealer for additional information on accessories.

Section 3 Operation

3.1 — Controller Lid Operation

- Lift lid from bottom to open. Lid will secure in place when opened.

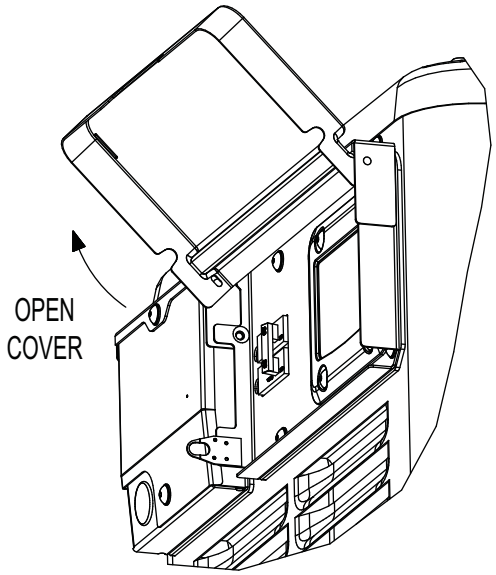


Figure 3-1: Open Control Panel Lid

- Pull on lid slightly to close.

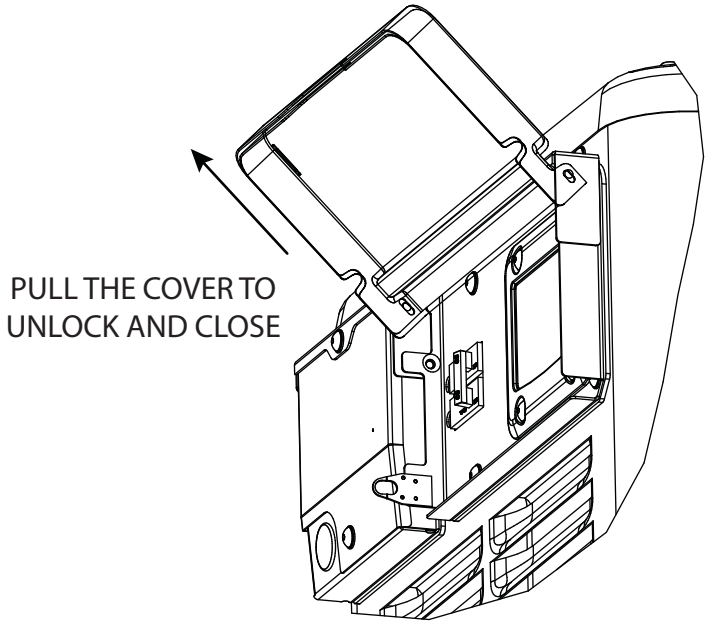


Figure 3-2: Close Control Panel Lid

3.2 — Circuit Breaker

The Main Line Circuit Breaker (MLCB) and control panel are located under the side panel cover. Open the side cover door to access both the control panel and circuit breaker.

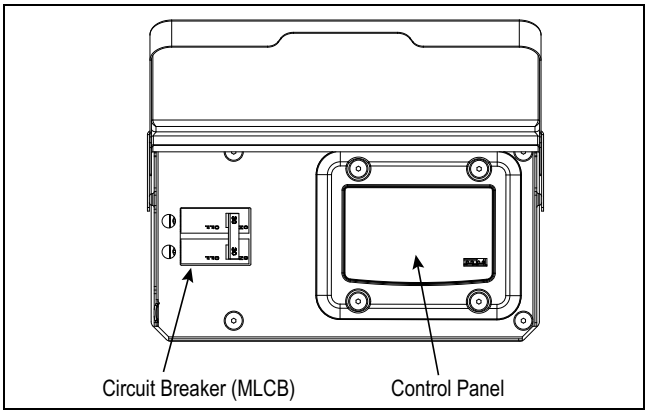


Figure 3-3: Control Panel / Circuit Breaker Location

⚠ WARNING!

⚠ Set to AUTO, the engine may crank and start at any time without warning. Such automatic starting occurs when utility power source voltage drops below a preset level or during the normal exercise cycle. To prevent possible injury that might be caused by such sudden starts, always set to OFF and remove the fuse(s), disconnect the battery negative cable and shut off utility power at the MLCB before working on or around the generator or transfer switch. Then, place a "DO NOT OPERATE" tag on the generator panel and on the transfer switch.

NOTE: The generator is to be run with all appropriate panels in place, including during troubleshooting by a technician.

3.3 — Control Panel

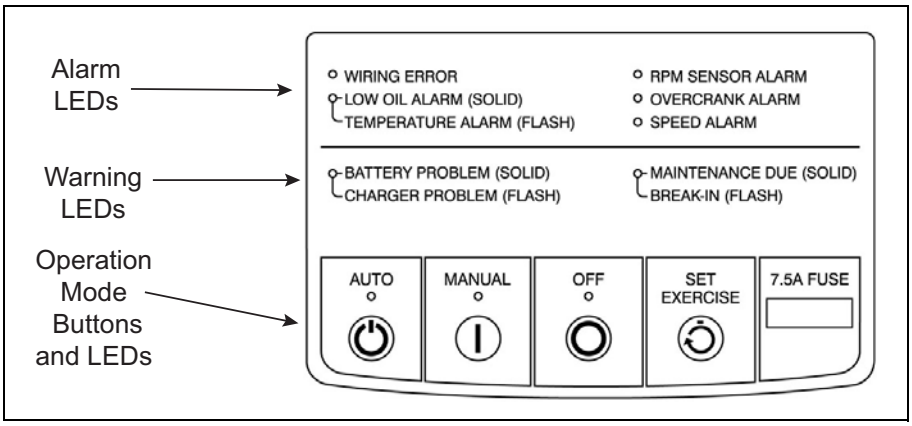


Figure 3-4: Generator Control Panel and LEDs

NOTE: The control panel on this unit is intended to only be operated by qualified service personnel.

3.3.1— Using the Auto/Off/Manual Buttons

Button	Description of Operation
AUTO (GREEN)	Selecting this button activates fully automatic system operation. It also allows the unit to automatically start and exercise the engine every seven days with the setting of the exercise timer (see the Setting the Exercise Timer section).
OFF (RED)	This button shuts down the engine and also prevents automatic operation of the unit.
MANUAL (BLUE)	This button will crank and start the generator. Transfer to standby power will not occur unless there is a utility failure.
SET EXERCISE (GREY)	Used to establish generator exercise time. Hold the button for 3 seconds at the new exercise time desired. **NOTE: Exercise time can only be set at the time you wish exercise to actually take place.**

NOTE: Damage caused by mis-wiring of the interconnect wires is not warrantable.

NOTE: Loss of utility power will cause either the AUTO or OFF or MANUAL button to flash. Whichever mode the generator is in at the time of utility loss.

3.3.2— Using the LED Interface

The user interface includes seven (7) LEDs, to indicate the generator's alarms, warnings, and maintenance actions due. See Figure 3-2 and the following table for details on each indication.

The user interface also includes 3-mode LEDs to indicate the current generator mode setting (AUTO, MANUAL, or OFF). The active LED is also used to indicate whether the utility voltage is present. The active LED will be solid when utility is available. It will flash to indicate the loss of utility power. For example; when the generator is in AUTO and Utility is present, the green AUTO LED will be solid ON. When the generator is in AUTO and utility is lost, the AUTO LED will flash.

LED Alarm	Description (LED Flashing)	Description (LED Solid)
Temperature Alarm (Flashing) Low Oil Level Alarm (Solid) *	Temperature levels are excessive -------	------- Engine oil level is insufficient
Charger Warning (Flashing) Battery Problem Warning (Solid) *	Charging problem exists -------	------- Battery problem exists
RPM Sensor Alarm	-------	RPM sensor problem exists
Overcrank Alarm	-------	Overcranking condition exists
Speed Alarm	Overspeed condition exists	Underspeed condition exists
Break-in Maintenance Due (Flashing) Regular Maintenance Due (Solid) *	20 hour break-in maintenance due -------	------- 1 year / 100 hour maintenance due
* These LEDs are shared with two alarm conditions. Solid light indicates one alarm. Flashing light indicates the other alarm condition.		

3.4 — Alarm Response Procedures

The generator is protected by a series of sensors that will detect an Alarm/Warning condition and alert the owner/operator of the condition via the Control Panel display. When certain alarm conditions are detected, the generator will shut down.

NOTE: Unless properly trained to clear and correct Warning and Alarm conditions, contact the nearest Authorized dealer or Trained Technician.

3.4.1— Clearing an Alarm/Warning Condition

To clear an alarm or warning condition from the Control Panel, press the OFF button. Press OFF button again. The flashing or solid indicator LED will turn off.

NOTE: Clearing a code will not correct the problem. It will simply turn off the LED indicating that told you that a problem occurred. The problem indicated must be diagnosed and corrected to prevent a re-occurring alarm condition.

NOTE: Removing or failure of the 7.5 Amp ATO® fuse will turn off all the panel LEDs. Replacement of the fuse will initiate the LED self test.

LED Condition	Action	2nd Action	3rd Action
Clear Alarm / Warning or Maintenance LED Alarm(s)	press OFF	press OFF again	-----
Clear Maintenance LED when Alarm or Warning LED is also present	press OFF	press OFF again	press OFF 3rd time

3.5 — Automatic Operation

To select automatic operation:

1. Make sure the transfer switch main contacts are set to their UTILITY position (loads connected to the utility power source).
2. Be sure that normal UTILITY power source voltage is available to transfer switch terminal lugs N1 and N2.
3. Press the AUTO button on the Control Panel Interface.
4. Set the Main Circuit Breaker (Generator Disconnect) to its ON (Closed) position.

With these steps complete, the generator will start automatically when utility source voltage drops below a preset level. After the unit starts, loads are transferred to the standby power source.

3.5.1— Automatic Sequence of Operation

3.5.1.1 — Utility Failure

With the generator set to AUTO, when the utility fails (below 65% of nominal) a 5 second line interrupt delay time is started. If the utility is still gone when the timer expires, the engine will crank and start. Once started, a 6 second engine warm-up timer will be initiated. When the warm-up time expires, the Control Panel will transfer the load to the generator. If the utility power is restored (above 80% nominal) at any time from the initiation of the engine start until the generator is ready to accept load (6 second warm-up time has not elapsed), the Control Panel will complete the start cycle and run the generator through its normal cool down cycle, however, the load will remain on the utility source.

3.5.1.2 — Cranking

Most times the generator will start on the first crank cycle, but it is normal for it to cycle multiple times in order to start. The following is the cranking sequence:

• 16 second engine cranking ***** • 7 second pause
• 16 second engine cranking • 7 second pause
• 7 second engine cranking • 3 second pause
• 7 second engine cranking • 3 second pause
• 7 second engine cranking
If the unit does not start during the crank sequence, the control panel Overcrank Alarm LED will light. NOTE: The initial 16 second crank attempt may be repeated once if a proper crank was not detected. This may result in up to 6 crank attempts total. *

3.5.1.3 — Load Transfer

The transfer of load when the generator is running is dependent upon the operating mode:

MANUAL	• Will not transfer to generator if utility is present. • Will transfer to generator if utility fails (below 65% of nominal for 10 consecutive seconds). • Will transfer back when utility returns for 15 consecutive seconds. The engine will continue to run until removed from the MANUAL mode.
AUTO	• Will start and run if utility fails (below 65% of nominal for 5 consecutive seconds). • Will start a 6 second engine warm-up timer. • Will not transfer if utility subsequently returns. • Will transfer to generator if utility is not present. • Will transfer back to utility once utility returns (above 80% of nominal) for 15 seconds. • Will not transfer back to utility unless utility returns. The generator will shut down if the OFF button is pressed or a shutdown alarm is present. • Once utility power is returned, the generator will shut down after 1 minute cool-down time.
EXERCISE	• Will not exercise if generator is already running in either AUTO or MANUAL mode. • During exercise, the control panel will only transfer if utility fails during exercise for 6 seconds, and will operate as normal in AUTO mode.

3.6 — Turning the Generator Off When Operating Under Load

NOTE: Important! To turn the generator off during prolonged utility outages to perform maintenance or conserve fuel, follow these simple, but important steps:

To turn the generator OFF (while running in AUTO and online):

1. Turn OFF (or OPEN) the main Utility disconnect.
2. Turn OFF (or OPEN) the Main Line Circuit Breaker (MLCB) on the generator.
3. Wait for 1 minute to allow the generator to cool. Turn the generator OFF.

To turn the generator back ON:

1. Put the generator back into AUTO and allow to start and warm-up for a few minutes.
2. Turn ON (or CLOSE) the MLCB on the generator.

The system will now be operating in its automatic mode. The main utility disconnect can be turned ON (or CLOSED), but to shut the unit off, this complete process must be repeated.

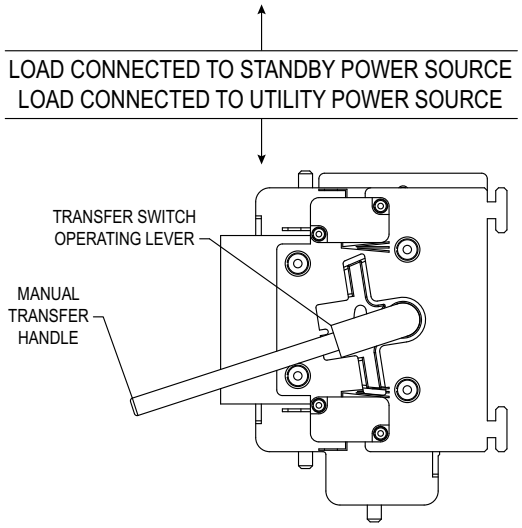
3.7 — Manual Transfer Operation

⚠ DANGER!

DO NOT attempt to activate the transfer switch manually until all power voltage supplies to the switch have been completely turned off. Failure to turn off all power voltage supplies may result in extremely hazardous and possibly fatal electrical shock.

Prior to automatic operation, manually exercise the transfer switch to verify that there is no interference with proper operation of the mechanism. Manual operation of the transfer switch is required if electronic operation should fail.

3.7.1— Transfer to Generator Power Source



1. Press the Control Panel OFF button.
2. Set the Main Circuit Breaker (Generator Disconnect) to its OFF (OPEN) position.
3. Turn off the utility power supply to the transfer switch using the means provided (such as a utility main line circuit breaker).
4. Use the manual transfer handle inside the transfer switch to move the main contacts to their STANDBY positions (loads connected to the standby power source).
5. To crank and start the engine, press the Control Panel MANUAL button.
6. Allow the engine to stabilize and warm up for a few minutes.
7. Set the Main Circuit Breaker (Generator Disconnect) to its ON (CLOSED) position. The standby power source now powers the loads.

Figure 3-5: Manual Transfer Switch Operation

NOTE: This is an example, actual switch may vary. Follow directions in the appropriate manual.

3.7.2— Transfer Back to Utility Power Source

When utility power has been restored, transfer back to utility source and shut down the generator. To manually transfer back to utility power and shut down the generator:

1. Set the Main Circuit Breaker (Generator Disconnect) to its OFF (OPEN) position.
2. Allow the engine to run for 2 minutes at no-load to stabilize the internal temperatures.
3. Press the Control Panel OFF button. The engine should shut down.
4. Ensure that utility power supply to the transfer switch is turned off.
5. Use the manual transfer handle inside the transfer switch to move the main contacts back to their UTILITY positions (loads connected to the utility power source).
6. Turn on the utility power supply to the transfer switch using the means provided.
7. Press the Control Panel AUTO button.

3.8 — Side Compartment

Local codes may require this compartment to be locked. A hasp is provided so the owner/operator can secure the compartment with his or her own padlock. Check local codes for side compartment locking requirements.

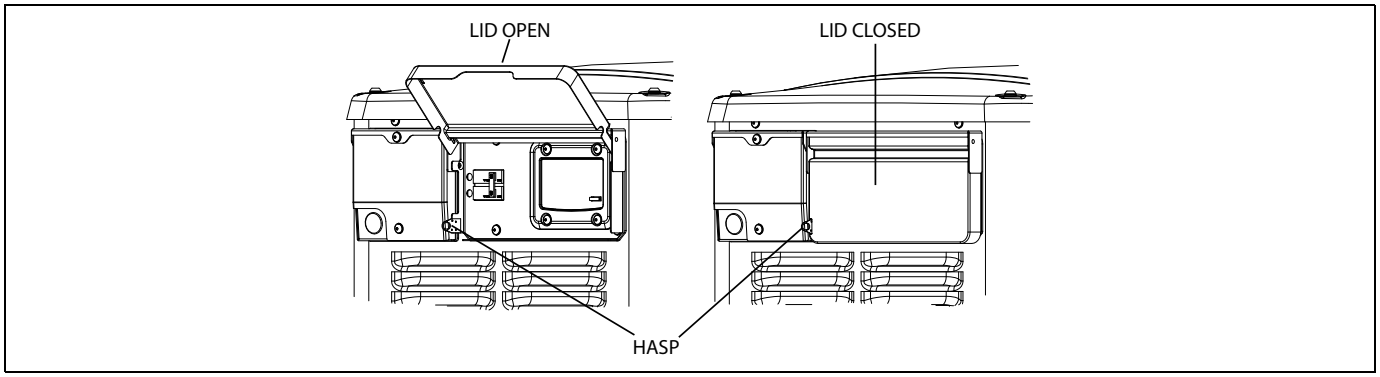


Figure 3-6: Open Side Compartment

3.8.1— Main Circuit Breaker (Generator Disconnect)

This is a 2-pole breaker rated according to relevant specifications.

3.9 — Battery Charger

NOTE: The battery charger is integrated into the control panel. Battery Problem LED is illuminated when battery needs service.

The battery charger operates as a “Smart Charger” that ensures:

- Output is continually optimized to promote maximum battery life.
- Charging levels are safe.

3.10 — Setting the Exercise Timer

This generator is equipped with an exercise timer. Once it is set, the generator will star t and exercise every seven days, on the day of the week and at the time of day specified. During this exercise period, the unit runs for approximately 12 minutes and then shuts down. Transfer of loads to the generator output does not occur during the exercise cycle unless utility power is lost.

1. Place the generator in the AUTO mode.
2. Hold the “SET EXERCISE” Button for 3 seconds. The generator will start, run an exercise cycle and confirm the setting.
3. The exercise time is now established. The generator will exercise each week at this time.

To CHANGE the exercise time once it has been set, hold the “SET EXERCISE” button on the generator for three (3) seconds at the time you wish the new exercise time to take place. The exercise timer does not correct for daylight savings time.

NOTE: The exerciser will only work in the AUTO mode and will default to exercise weekly at the time the Control Panel was last powered ON unless this procedure is performed. The exercise function will need to be reset every time the 12 volt battery and T1 power to the generator are disconnected and then reconnected, and/or when the fuse is removed and T1 power is removed from the generator.

NOTE: If the unit is equipped with Mobile Link™, the exercise time can be remotely set for any desired day or time.

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Section 4 Maintenance

NOTE: Proper maintenance and proper and safe operation is crucial to the life of the generator. Genuine Generac parts MUST be used to ensure warranty coverage.

NOTE: All service to this generator must be performed by a qualified service person only.

4.1 — Performing Scheduled Maintenance

It is important to perform Maintenance as specified in the Service Schedule for proper generator operation and to ensure that the generator complies with the applicable emission standards for the duration of its useful life. Service and repairs may be performed by any qualified service person or repair shop. Additionally, emissions critical maintenance must be performed as scheduled in order for the Emissions Warranty to be valid. Emissions critical maintenance consists of servicing the air filter and spark plugs in accordance with the Service Schedule. The Control Panel will prompt for break-in or regular maintenance, when it is required, to be performed. Break-in maintenance consists of the oil change, valve clearance and tune-up. Regular maintenance includes the oil, tune-up, air cleaner, spark plug and valve clearance.

NOTE: The control panel Maintenance Due light will flash when the initial 20 hour break-in interval has been reached. The same light will be lit solid when following regular maintenance intervals are required (every 1 year/100 hours).

4.1.1 — Clearing a Maintenance Due Condition

After Performing maintenance, the Maintenance Due light must be cleared. To reset the Maintenance Due light, the generator must be in OFF mode. Set the Generator to OFF and press the OFF button to reset Maintenance Due. If an alarm condition exists, the alarm condition must be cleared prior to resetting the Maintenance Due light.

4.2 — Service Schedule

ATTENTION: All service work must be performed by a qualified service person only.

System Component	Procedure			Frequency
X = Action R= Replace as Necessary * = Notify Dealer if Repair is Needed	Inspect	Change	Clean	W = Weekly M = Monthly Y = Yearly
Fuel				
Fuel lines and connections*	X			M
Lubrication				
Oil level	X			M or 24 hours of continuous operation
Oil		X		6 M or 100 hours of operation**
Cooling				
Enclosure louvers	X		X	W
Battery				
Remove corrosion, ensure dryness	X		X	Y
Clean and tighten battery terminals	X		X	Y
Check charge state	X	X		Y
Electrolyte level (unsealed batteries only)*	X	X		Every 6 M
Engine and Mounting				
Air cleaner	X	X	X	3 M / 50 hours - clean / 1 Y / 300 hours - replace
Spark plug	X	X		6 M or 100 hours - inspect / 1 Y or 300 hours - change
Valve Clearance	X			1 Y or 300 hours***
General Condition				
Vibration, Noise, Leakage*	X			M

* Contact the nearest Dealer for assistance if necessary.

** Change oil after the first 20 hours of operation or 1 month. Continue to check at intervals of 100 hours or 6 months, whichever occurs first. Severe duty oil drain intervals: In cold weather conditions (ambient below 40 ^{0}F/4.4 ^{0}C) change engine oil every 6 months or 50 hours of operation to prevent accumulation of water in the oil. If the unit will be operated continuously in hot ambient conditions (ambient above 85 ^{0}F/29.4 ^{0}C) or operation in an extremely dusty or dirty environment change the engine oil every 3 months or 50 hours of operation to prevent oil breakdown.

*** Check valve clearance after the first 20 hours of operation. Continue to check at intervals of 300 hours.

4.2.1 — Maintenance Log

1. Battery inspection and charge check (recommended every year (1) for the life of the battery)

NOTE: Check electrolyte level (unsealed batteries only) every 6 months.

Dates Performed:

2. Oil, oil filter and air filter replacement (recommended after the first 20 hours after installation and every 100 hours or 6 months, whichever occurs first)

NOTE: Spark plug replacement (recommended every 1 year or 300 hours, whichever occurs first).

Dates Performed:

3. Valve Adjustment (recommended after the first 20 hours of operation and then after every 300 hours of operation)

Dates Performed:

4.3 — Checking Engine Oil Level

When power outages necessitate running the generator for extended periods, the oil level should be checked daily. To check the engine oil level:

1. If the generator is running during a utility outage, first turn OFF all associated loads running in the residence using the electrical panel's main disconnect. Then, turn the generator's Main Circuit Breaker to the OFF position, press the Control Panel OFF button, remove the 7.5A ATO® fuse and disconnect the battery leads.
2. Remove the enclosure top lid by unscrewing the fasteners, and lift the front panel off.
3. Wait for 1 minute to allow the generator to cool down.
4. Remove the dipstick/fill cap and wipe it dry with a clean cloth.
5. Insert the dipstick/fill cap, but do not thread into the crankcase threads, then again remove it.
6. Observe the oil level. The level should be at the “Full” mark on the dipstick/fill cap. See Figure 4-1.

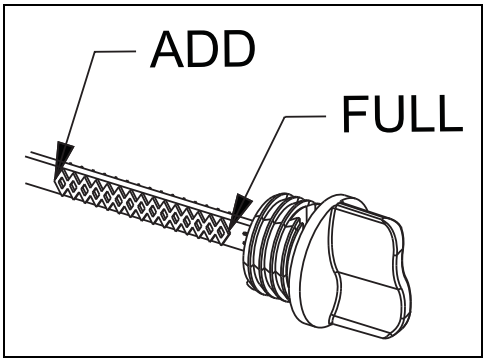

Figure 4-1: Checking Oil Level

7. If necessary, remove the dipstick/oil fill cap and add oil to the engine until the level reaches the “Full” mark and reinsert the dipstick/oil fill cap.
8. If the generator was running during a utility outage, first turn the Main Circuit Breaker to the ON position, connect the battery leads, install the 7.5A ATO® fuse, press the Control Panel AUTO button. Then, turn ON the needed loads in the residence.

⚠ DANGER!

⚠ **Never operate the engine with the oil level below the “Add” mark on the dipstick. Doing so could damage the engine.**

⚠ Hot oil may cause burns. Avoid prolonged or repeated skin exposure with used oil. Thoroughly wash exposed areas with soap.

4.3.1 — Engine Oil Recommendations

To maintain the warranty, genuine Generac replacement parts MUST be used, including Generac oil kits (which includes an air filter). Generac oil kits can be obtained through an Authorized Dealer or purchased on-line. To purchase on-line, access the maintenance kits page through www.generac.com or directly at shop.generac.com. Follow the prompts to enter delivery information and complete the purchase.

All Generac oil kits meet minimum American Petroleum Institute (API) Service Class SJ, SL, or better. Use no special additives. Select the appropriate viscosity oil grade according to the expected operating temperature. Synthetic oil also can be used in the appropriate weight as standard.

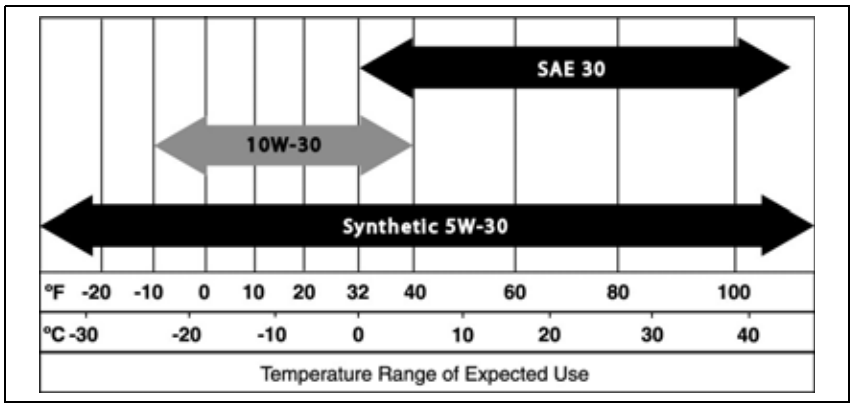

Figure 4-2: Recommended Oil Based on Temperature

- SAE 30 above 32 ºF (0 ºC)
- 10W-30 between 40 ºF and -10 ºF (4 ºC and -23 ºC)
- Synthetic 5W-30 for all temperature ranges*

NOTE: *Synthetic oil should only be used after 100 hours of operation.

⚠ DANGER!

⚠ Any attempt to crank or start the engine before it has been properly serviced with the recommended oil may result in an engine failure.

4.3.2 — Changing the Oil

1. Start the engine by pressing the MANUAL button on the control panel and allow the engine to run until it is thoroughly warmed up. Then, press the control panel OFF button to shut down the engine.
2. A few minutes after the engine shuts OFF, when it has cooled slightly, remove the enclosure top lid by unscrewing the fasteners, and lift the front panel off.
3. Remove the battery access panel by loosening the two hex head screws, disconnect the battery and remove the fuse.
4. Remove the drain hose from the retaining clamp and direct the hose end into a suitable container. See Figure 4-3.
5. Unscrew the drain hose cap and allow engine oil to drain. Remove dipstick/ fill plug to permit oil to drain faster. Ensure that the oil is drained to a pan placed at lower level than the engine to ensure proper drainage.
6. After the oil has drained, replace the drain hose cap.
7. Secure the drain hose, in position, with the drain hose retaining clamp
8. Refill the engine with the proper recommended oil. For recommended oil, see Figure 4-2.
9. Reconnect the battery, secure the battery access panel, insert the fuse, and switch the unit to manual before starting the generator. Start the engine, run for 1 minute, and check for leaks.
10. Shut down the generator and recheck the oil level. Add oil as needed. DO NOT OVER FILL.
11. Re-insert dipstick/fill cap.
12. Install the front panel and install the enclosure top lid. Tighten fasteners securely.
13. Press the control panel AUTO button.
14. Dispose of the used oil at a proper collection center.

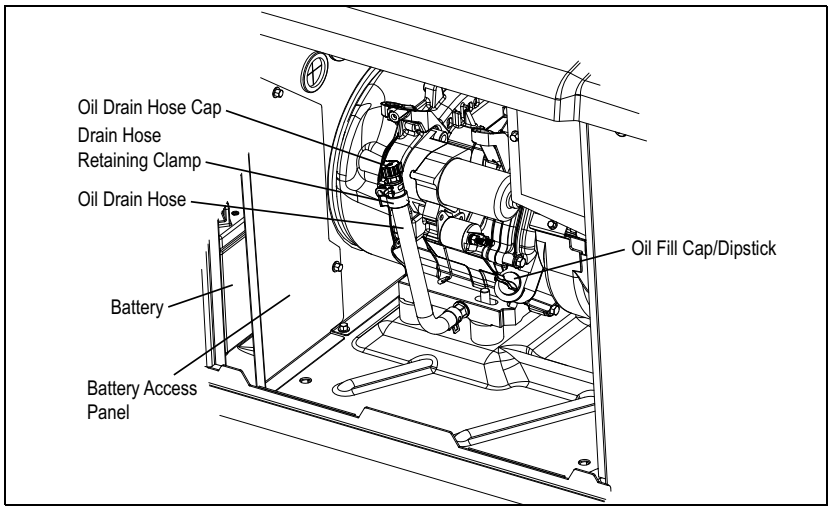

Figure 4-3: Oil Drain Location

4.4 — Changing the Engine Air Cleaner

1. With the generator shut down, remove the top lid.
2. Disengage the wire clip and remove the air cleaner access cover. See Figure 4-4.
3. Remove the old air filter and discard.
4. Thoroughly clean the air cleaner enclosure of any dust or debris while ensuring that none of the debris falls in to the engine intake.
5. Install a new air cleaner.
6. Install the air cleaner cover and engage the wire clip.
7. Install the enclosure top lid. Tighten fasteners securely.
8. Place generator in AUTO.

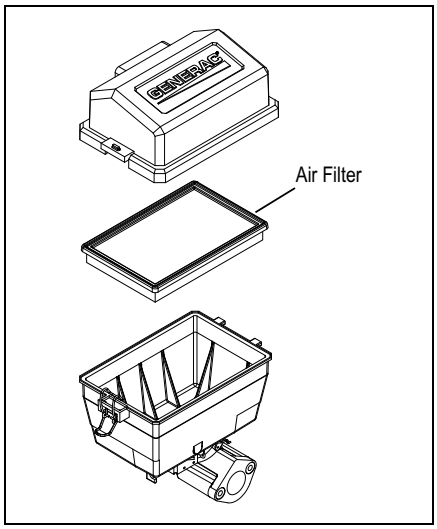

Figure 4-4: Air Filter Location

4.5 — Spark Plug

Reset the spark plug gap or replace the spark plug as necessary:

1. With the generator shut down, remove the top lid.
2. Clean the area around the base of the spark plug to keep dirt and debris out of the engine.
3. Gently pull the spark plug boot off of the spark plug. Remove the spark plug and check the condition. Install a new plug if the old one is worn or if reuse is questionable.

4. Clean the plug by scraping or washing with a wire brush and commercial solvent. Do not blast the plug to clean.
5. Check the spark plug gap using a wire feeler gauge. See Figure 4-5. Adjust the gap by carefully bending the ground electrode to:
   - 7 kW units - 0.76 mm (0.030 in)
6. Install spark plug. Torque to 20-22 ft/lb (27-30 Nm). Install spark plug boot.
7. Install top lid. Tighten fasteners securely.

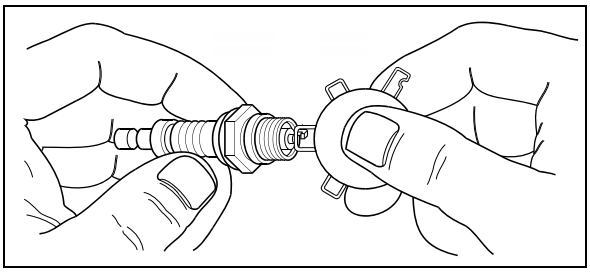

Figure 4-5: Spark Plug Gap Adjustment

4.6 — Valve Lash Adjustment

After the first 20 hours of operation and then after every 300 hours of operation, check the valve clearance. Adjust if necessary.

Important: Please contact the Dealer for service assistance. This is a very important step to ensure longest life for the engine.

To check valve clearance:

1. The engine should be cool before checking. Make sure the engine is at 60 - 80 °F (16 - 27 °C).
2. Turn the generator to OFF.
3. Remove enclosure lid fasteners and lid. Then remove the back panel by undoing the fasteners.
4. Remove spark plug wire and position wires away from plug.
5. Remove spark plug.
6. Make sure the piston is at Top Dead Center (TDC) of its compression stroke (both valves closed). To get the piston at TDC, remove the rubber plug in the center of the intake screen at the front of the engine to gain access to the flywheel nut. Use a 24 mm socket and ratchet to rotate the engine in a clockwise direction. While watching the piston through the spark plug hole. The piston should move up and down. Watch the intake valve open and close. The piston is at TDC, of it's compression stroke, when it is at its highest point of travel.
7. Check clearance between the rocker arm and the valve stem with a feeler gauge.
8. If valve clearance is 0.002 - 0.004 in (0.05 - 0.1 mm), adjustment is not needed.

To adjust valve clearance (after performing steps 1-8) (see Figure 4-6):

1. Make sure the engine is at 60 - 80 °F (16 - 27 °C).
2. Remove enclosure lid fasteners and lid. Then remove the fasteners and the back panel. (if not already removed)
3. Make sure that the spark plug wire is removed from the spark plug and out of the way.
4. Remove the six screws attaching the valve cover.
5. Loosen the rocker jam nut. Using a 13 mm Allen wrench, turn the pivot ball stud while checking clearance between the rocker arm and the valve stem with a feeler gauge. Correct clearance is 0.002-0.004 in (0.05-0.1 mm).

NOTE: Hold the rocker arm jam nut in place as the pivot ball stud is turned.

6. When valve clearance is correct, hold the pivot ball stud in place with the Allen wrench and tighten the rocker arm jam nut. Tighten the jam nut to 174 in-lb (19.68 N-m) torque. After tightening the jam nut, recheck valve clearance to make sure it did not change.
7. Install new valve cover gasket.

NOTE: Make sure the new valve cover gasket is in place. Start all six screws before tightening or it will not be possible to get all the screws in place.

8. Install the valve cover. Tighten the fasteners to 35-62 in/lb (4-7Nm).

9. Install the rubber plug into the fan screen.
10. Install the spark plug and attach the spark plug wire.
11. Install the back panel. Ensure that the alternator intake bellow is captured by the frame on back panel securely with out any kinks. Install enclosure top lid. Tighten all fasteners securely.
12. Place the generator in AUTO.

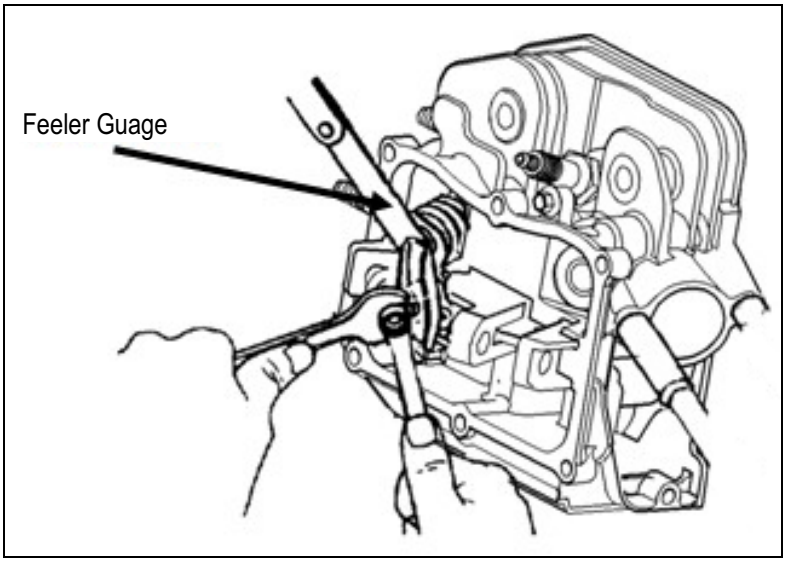

Figure 4-6: Valve Clearance Adjustment

4.7 — Battery Maintenance

⚠ DANGER!

Do not dispose of the battery by incineration. The battery is capable of exploding.

A battery presents a risk of electrical shock and high short circuit current. Strictly observe the following precautions when working on batteries:

- Remove the 7.5 Amp ATO® fuse from the generator control panel.
- Remove all jewelry—watches, rings, metal objects, etc.
- Use tools with insulated handles.
- Wear rubber gloves and boots.
- Do not lay tools or metallic objects on top of the battery.
- Disconnect the charging source (remove T1 fuse from Transfer Switch) prior to connecting or disconnecting battery terminals.

⚠ WARNING!

Do not open or mutilate the battery. Released electrolyte has been known to be harmful to the skin and eyes, and to be toxic. The electrolyte is a dilute sulfuric acid that is harmful to the skin and eyes. It is electrically conductive and corrosive. Strictly observe the following precautions:

- Wear full eye protection and protective clothing.
- Where electrolyte contacts the skin, wash it off immediately with water.
- Where electrolyte contacts the eyes, flush thoroughly and immediately with water and seek medical attention.
- Wash down spilled electrolyte with an aid neutralizing agent. A common practice is to use a solution of 1 lg (500 gr) bicarbonate of soda to 1 gal (4 l) of water. The bicarbonate of soda solution is to be added until the evidence of reaction (foaming) has ceased. The resulting liquid is to be flushed with water and the area dried.

⚠ DANGER!

Lead-acid batteries present a risk of fire because they generate hydrogen gas. Strictly observe the following precautions:

- DO NOT smoke when near the battery.
- DO NOT cause flame or spark in the battery area.
- Discharge static electricity from the body before touching the battery by first touching a grounded metal surface.

Be sure the utility power supply is turned off and the 7.5 Amp ATO® fuse is removed from the generator Control Panel, or sparking may occur at the battery posts as the cables are attached and cause an explosion.

- DO NOT cause flame or spark in the battery area.
- Discharge static electricity from the body before touching the battery by first touching a grounded metal surface.

The battery should be regularly inspected per the Service Schedule:

1. With the generator shut down and battery charger power removed, remove the top lid, front panel and battery access panel.

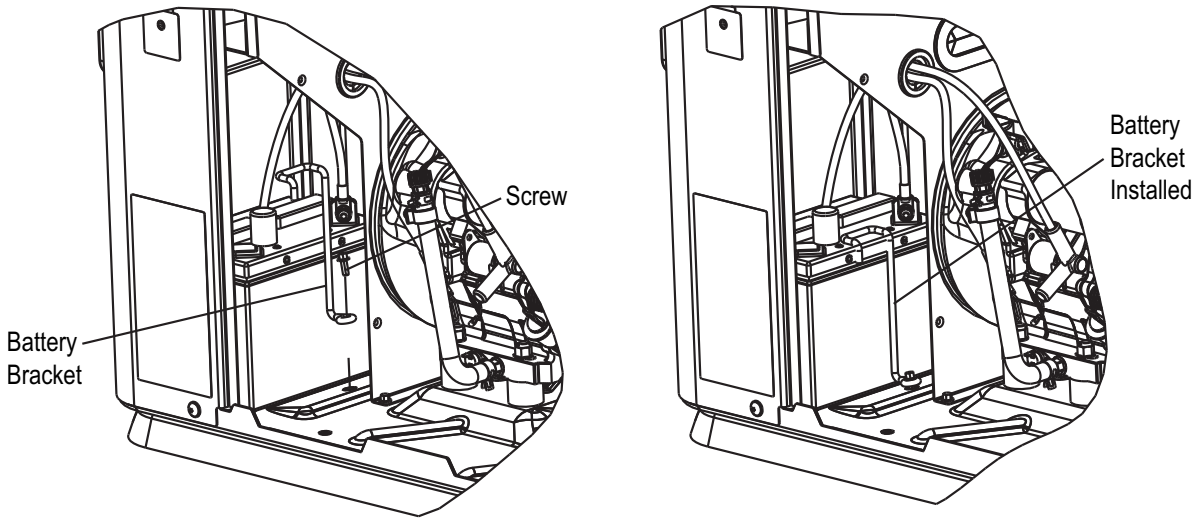

Figure 4-7: Battery Installation

2. Remove the battery bracket and carefully tilt and pull the battery through the battery access window. The battery wires, terminals and other battery service locations are easily accessible in this position.
3. Inspect the battery posts and cables for tightness and corrosion. Remove and clean as necessary using a wire brush on the battery terminals and cable ends. Install and tighten connections securely.

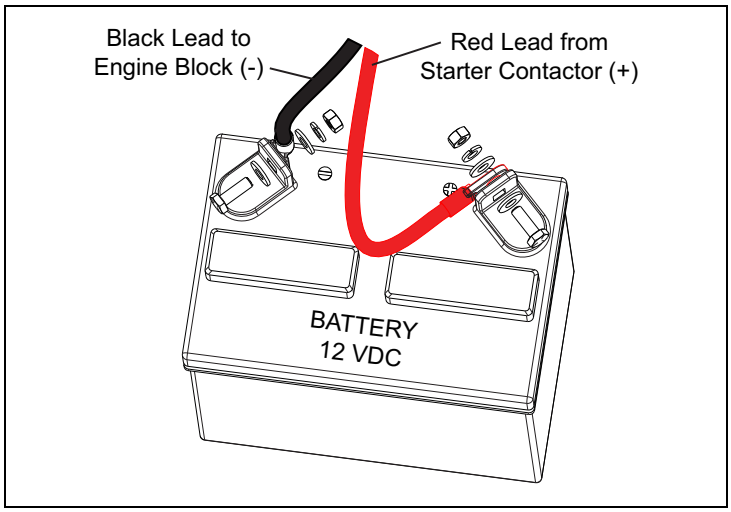

Figure 4-8: Battery Location and Terminals

4. Check the battery fluid level of unsealed batteries, and if necessary, fill with distilled water only. DO NOT use tap water. Also, have the Dealer or a qualified Service Technician check the state of charge and condition.
5. Place the battery into its original location with the battery terminals connected and properly secure with the battery bracket.
6. Install the battery access panel, front panel and top lid. Tighten all fasteners securely.

4.8 — Attention After Submersion

If the generator has been submerged in water, it MUST NOT be started and operated. Following any submersion in water, have a Dealer thoroughly clean, dry, and inspect the generator. If the structure (home) has been flooded, it should be inspected by a certified electrician to ensure there won't be any electrical problems during generator operation or when utility power is returned.

NOTE: When a battery is dead or has been disconnected, the exercise time must be reset.

4.9 — Corrosion Protection

Periodically wash and wax the enclosure using automotive type products. Frequent washing is recommended in salt water/coastal areas. Spray engine linkages with a light oil such as WD-40.

4.10 — Out of Service Procedure

4.10.1 — Removal From Service

If the generator cannot be exercised every 7 days and will be out of service longer than 90 days, prepare the generator for storage:

1. Start the engine and let it warm up.
2. Close the fuel shutoff valve in the fuel supply line and allow the unit to shut down.
3. Once the unit has shut down, set the generator's Main Circuit Breaker (Generator Disconnect) to its OFF (OPEN) position.
4. Turn off the utility power to the transfer switch.
5. Remove the 7.5 Amp ATO® fuse from the generator's Control Panel.
6. Disconnect the battery cables. Remove negative cable first.
7. Remove battery charger AC input T1/Neutral cable (4-pin connector) at Control Panel.
8. While the engine is still warm, drain the oil completely, and then refill the crankcase with oil.
9. Attach a tag to the engine indicating the viscosity and classification of the new oil in the crankcase.
10. Remove the spark plug and spray a fogging agent into the spark plug threaded opening. Install and tighten the spark plug.
11. Remove the battery and store it in a cool, dry room on a wooden board. Never store the battery on any concrete or earthen floor.
12. Clean and wipe down the entire generator.

4.10.2 — Return to Service

To return the unit to service after storage:

1. Verify that utility power is turned off.
2. Check the tag on the engine for oil viscosity and classification. If necessary, drain and refill with proper oil.
3. Check the state of the battery. Fill all cells of unsealed batteries to the proper level with distilled water. DO NOT use tap water. Recharge the battery to 100% state of charge. If defective, replace the battery.
4. Clean and wipe down the entire generator.
5. Make sure the 7.5 Amp ATO® fuse is removed from the generator Control Panel.
6. Reconnect the battery. Observe battery polarity. Damage may occur if the battery is connected incorrectly. Install positive cable first.
7. Reconnect the battery charger AC input T1/Neutral cable (4-pin connector) at Control Panel.
8. Open the fuel shutoff valve.
9. Insert the 7.5 Amp ATO® fuse into the generator Control Panel.
10. Start the unit by pressing the MANUAL button. Allow the unit to warm up for a few minutes.
11. Stop the unit by pressing the control panel OFF button.
12. Turn on the utility power to the transfer switch.
13. Set the control panel to AUTO.

The generator is ready for service.

NOTE: When a battery is dead or has been disconnected, the exercise time must be reset.

Section 5 Troubleshooting

Problem	Cause	Correction
Engine will not crank.	1. Fuse blown. 2. Loose, corroded or defective battery cables. 3. Defective starter contact. 4. Defective starter motor. 5. Dead Battery.	1. Correct short circuit condition by replacing 7.5 Amp fuse in generator control panel. 2. Tighten, clean or replace as necessary.* 3. *See #2. 4. *See #2. 5. Charge or replace battery.
Engine cranks but will not start.	1. Out of fuel. 2. Defective fuel solenoid (FS). 3. Defective spark plug(s). 4. Valve lash out of adjustment. 5. In cold weather condition.	1. Replenish fuel / turn on fuel valve. 2. * 3. Clean, re-gap or replace plug(s). 4. Adjust valve lash. 5. Install recommended cold weather kit.
Engine starts hard and runs rough.	1. Air cleaner plugged or damaged. 2. Defective spark plug(s). 3. Fuel pressure incorrect. 4. Fuel selector in wrong position.	1. Check / replace air cleaner. 2. Clean, re-gap or replace plug(s). 3. Confirm fuel pressure to regulator is 10-12” water column (19-22mm mercury) for LP, and 3.5 - 7” water column (9-13mm mercury) for natural gas. 4. Move selector to correct position.
Generator is set to OFF, but the engine continues to run.	1. Control panel wired incorrectly. 2. Defective control board.	1. Repair wiring.* 2. Replace control panel.*
There is no AC output from generator.	1. Main line circuit breaker is in the OFF (or OPEN) position. 2. Generator internal failure.	1. Reset circuit breaker to ON (or CLOSED). 2. *
There is no transfer to standby after utility source failure.	1. Main line circuit breaker is in the OFF (or OPEN) position. 2. Defective transfer switch coil. 3. Defective transfer relay. 4. Transfer relay circuit open. 5. Defective control logic board.	1. Reset circuit breaker to ON (or CLOSED) position. 2. * 3. * 4. * 5. *
Unit consumes large amounts of oil.	1. Engine over filled with oil. 2. Engine breather defective. 3. Improper type or viscosity of oil. 4. Damaged gasket, seal or hose.	1. Adjust oil to proper level. 2. * 3. See “Engine Oil Recommendations”. 4. Check for oil leaks.
* Contact an independent Authorized Service Dealer for assistance.		

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Section 6 Quick Reference Guide

Problem	Things to Check	Active Alarm	Solution
Unit running in AUTO but no power in house.	Check MLCB	NONE	Check MLCB. Contact servicing dealer if MLCB is in the ON position.
Unit shuts down during operation.	Check for alarms	HIGH TEMPERATURE	Check ventilation around the generator, intake, exhaust and rear of generator. If no obstruction contact servicing dealer.
Unit was running and shut down. Attempts to restart.	Check for alarms	RPM SENSE LOSS	Clear alarm and remove household loads from the generator. Put back in AUTO and restart. If problem returns, contact servicing dealer to investigate possible fuel issue.
After activation, unit will not start in AUTO with utility loss.	See if unit is activated	NOT ACTIVATED	Refer to activation section in Owner's Manual.
Unit will not start in AUTO with utility loss.	Check for alarms	LOW OIL LEVEL	Check oil level. Add oil per Owner's Manual. Contact servicing dealer if oil level is correct.
Unit will not start in AUTO with utility loss.	Check for alarms	RPM SENSE LOSS	Clear alarm. Contact servicing dealer if battery is GOOD. Replace battery if battery problem is displayed.
Unit will not start in AUTO with utility loss.	Check for alarms	OVERCRANK	Check fuel line shutoff valve is in the ON position. Clear alarm. Attempt to start the unit in MANUAL. If it does not start or starts and runs rough, contact servicing dealer.
Unit will not start in AUTO with utility loss.	Check for alarms	NO LEDs LIT	Check ATO 7.5 Amp ATO® fuse. Replace with same type fuse if bad. Contact servicing dealer if fuse is good.
Unit will not start in AUTO with utility loss.	Check for alarms	OVERSPEED UNDERSPEED	Contact servicing dealer.
Unit will not start in AUTO with utility loss.	Check for alarms	WIRING ERROR	Contact servicing dealer.
Control panel indicates battery problem.	Check for additional information	BATTERY PROBLEM	Contact servicing dealer.
Control panel indicates charging problem.	Check for additional information	CHARGER PROBLEM	Contact servicing dealer
Control panel indicates break-in maintenance due.	Check for additional information	Break in Maintenance Due	Perform break in maintenance. Clear maintenance due light.
Control panel indicates maintenance due.	Check for additional information	1 Year / 100 Hour Maintenance Due	Perform scheduled maintenance. Clear maintenance due light.
Utility present. Active mode LED (AUTO/MANUAL/OFF) is flashing.	Check utility sense lines/ utility disconnect	NONE	Contact servicing dealer. Close utility disconnect.

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